KOLESNIKOV, A.A.; URITSKIY, Z.I.

Possible appearance of negative temperatures in impurity semiconductors. Izv. vys. ucheb. zav.; fiz. no. 2:171-173 '64. (MIRA 17:6)

1. Gosudarstvennyy opticheskiy institut imeni Vavilova.

ACCESSION NR: AP4019978 S/0020/64/154/006/1395/1397

AUTHORS: Nikolayev, A.V. (Corresponding member); Kolesnikov, A.A.

TITLE: Extraction system of $La(NO_3)_3$-HNO_3-H_2O-$(C_4H_9O)_3PO$ at 25C

SOURCE: AN SSSR. Doklady*, v. 154, no. 6, 1964, 1395-1397

TOPIC TAGS: extraction system, $La(NO_3)_3$-HNO_3-H_2O-$(C_4H_9O)_3PO$, lanthanum, $La(NO_3)_3$, HNO_3, H_2O, lanthanum extraction

ABSTRACT: Experiments were carried out in isothermic conditions at 25±0.1C. Lanthanum was determined complexometrically (J. Korbe, R Pmbil Chem-Ana (45 4, 102 (1956)), the water content in the organic phase was determined by Fisher's method (Dzh. Mitchel, D. Smit, Akvametriya, L.-M., 1962, str. 68.) and nitric acid was determined by alkali titration with methyl red indicator. The distribution ratio of the component of the system was determined like the relation of its analytic concentrations in weight percentages in the organic phase in water. (Fig1) The distribution ratio of lanthanum depends on the relation of components of equilibrium water phases, and changes from 0.01 to 1.0 and more. The area of low recovery is located at

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ACCESSION NR: AP4019978

the origin, i.e. this is the area where a considerable degree of extraction is needed for complete recovery of lanthanum. The study of the extraction system $La(NO_3)_3-HNO_3-H_2O-(C_4H_9O)_3PO$ permitted the determination of a distribution ratio of 3 components $La(NO_3)_3$, HNO_3, and H_2O in all areas of concentration. Orig. art. has: 1 table and 1 figure

ASSOCIATION: Institut neorganicheskoy khimii Sibirskovo otdeleniya Akademii nauk SSSR (Institute of Inorganic Chemistry, Siberian Branch, Academy of Sciences SSSR)

SUBMITTED: 28Oct63 DATE ACQ: 23Mar64 ENCL: 02

SUB CODE: CH NR REF SOV: 006 OTHER: 003

Card 2/4

ACCESSION NR: AP4019978

ENCLOSURE: 02

Extraction system $La(NO_3)_3$-HNO_3-H_2O-$(C_4H_9O)_3PO$: a - are extraction rays, b - are isolines of coefficients of distribution $La(NO_3)_3$, c - are the same for HNO_3, d - are the same for H_2O

Card 4/4

NIKOLAYEV, A.V.; KOLESNIKOV, A.A.

The extraction system $HNO_3 - NH_4NO_3 - H_2O - (C_4H_9O)_3PO$ at 25°C. Izv. Sib. otd. AN SSSR no.10:80-86 '62 (MIRA 17:8)

1. Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR, Novosibirsk.

KOLESNIKOV, A.D.

Russian settlement of the forest-steppe of the Irtysh Valley in the 18th century. Izv. Omsk. otd. Geog. ob-va no.6:67-87 '64. (MIRA 18:9)

KOIESNIKOV, A.D.

Birds in the forest of the Dnepropetrovsk region. Ornitologiia no.7:67-70 '65.

(MIRA 18:10)

KOLESNIKOV, A.D.

From the history of the middle Irtysh Valley settlement.
Izv. Omsk. otd. Geog. ob-va no.5:137-151 '63. (MIRA 17:5)

KOLESNIKOV, Aleksandr Fedorovich; MATVEYENKO, V.I., red.

[Fundamentals of the mathematical processing of measuring results] Osnovy matematicheskoi obrabotki rezul'tatov izmerenii. Tomsk, Izd-vo Tomskogo univ., 1963. 46 p. (MIRA 17:8)

KOLESNIKOV, A. F., inzh.-podpolkovnik; MARKETOV, F., inzh.-podpolkovnik.

Synthetic solidol. Tankist no.2:55-56 F '58. (MIRA 11:3)
(Lubrication and lubricants)

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000723810002-8"

LARIONOV, G.N., inzh.; LESHCHENKO, A.F., inzh.; D'YACHENKO, A.Z., inzh.; PRISHCHEPA, M.P., dots.; KARPOV, V.I., dots.; ~~KOLESNIKOV, A.F.,~~ dots.; SAFRONOVA, M.I., assistent; MIRONOV, I.L., assistent; SEMESHKO, P.T., inzh.

Improve the quality of cast frog cores made of high-manganese steel. Put' i put. khoz. no. 8:24-25 Ag '58. (MIRA 11:8)

1. Novosibirskiy strelochnyy zavod (for Larionov, Leshchenko, D'Yachenko). 2. Tomskiy elektromekhanicheskiy institut inzhenerov transporta (for Prishchepa, Karpov, Kolesnikov, Safronova, Mironov). 3. Zamestitel' nachal'nika Tomskoy dorogi (for Sameshko).
(Railroads--Switches)
(Metal castings)

5(4)

AUTHORS: Prishchepa, M. P., Karpov, V. I., Kolesnikov, A. F.

SOV/32-24-12-35/45

TITLE: Machine for Testing Metals for Wearing During Frictional Impact (Mashina dlya ispytaniya metallov na iznos treniyem s udarom)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol 24, Nr 12, pp 1512 - 1512 (USSR)

ABSTRACT: For the machine described here the authors obtained patent Nr 112452. The previously known machines for testing frictional wearing with simultaneous dynamic loading do not reproduce the application conditions for the details tested. The machine described here comes very close to reproducing the working conditions of the building elements in railroad rails. The machine (Fig 1) consists of a driving part and a driven part. The former is a pair of wheels turned by the driving belt from an electric motor. One of the wheel rims is carefully ground and serves as a friction surface. The driven section is a disk (thickness 30 mm, diameter 200 mm)

Card 1/2

Machine for Testing Metals for Wearing During Frictional Impact SOV/32-24-12-35/45

of hardened ShKh15 steel which can turn freely on a ball bearing. The disk is turned by the turning, polished wheel located on a weighted lever. The sample is placed in a groove in the disk rim and is thus exposed to the friction. In order that the sample will be prominent, a jump or impact is produced while the wheele is turning which depends upon the extent to which the lever is weighted and the distance which the sample protrudes out of the disk. Several kinds of steel with varying structures (st.5, 40Kh, G13L) (Fig 2) were investigated. There are 2 figures.

ASSOCIATION: Tomskiy elektromekhanicheskiy institut inzhenerov zheleznodorozhnogo transporta (Tomsk Electromechanical Institute of Railway Transportation Engineers)

Card 2/2

S/129/60/000/04/014/020
E073/E535

AUTHORS: Prishchepa, M.P., Candidate of Technical Sciences, Karpov, V. I., Candidate of Phys-Mat. Sciences, and Kolesnikov, A. F.

TITLE: Change in the Properties of the Steel G13L During Tempering

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov, 1960, No 4, pp 53-54 (USSR)

ABSTRACT: The authors investigated the influence of the tempering regime of the high manganese G13L steel on changes in some of its properties. The Works A produced this steel in electric furnaces, whilst the Works B produced it in open hearth furnaces. The compositions were as follows:
A - 1.36% C, 14.27% Mn, 0.72% Si, 0.080% P, 0.013% S;
B - 1.27% C, 12.40% Mn, 0.65% Si, 0.071% P, 0.018% S.
A magnetic method of investigation was used, which was described in a paper by P. M. Yelchin (Ref 1). The obtained results are entered in the graphs, Figs 1 and 2 and these show that heating up to 415°C does not bring

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000723810002-8"

KARPOV, V.I.; KOLESNIKOV, A.F.; NIKITINA, A.K.; PRISHCHEPA, M.P.

Impact toughness of G13L steel at low temperatures. Metalloved. i term. obr. met. no.7:39-40 Jl '64.

1. Omskiy institut inzhenerov zheleznodorozhnogo transporta.

KOLESNIKOV, A.G.

Use of the new drills in Donets Basin mines. Ugol' Ukr. 6 no.1:35-36 Ja '62. (MIRA 15:2)

1. Elektromekhanicheskiy zavod "Krasnyy metallist".
(Donets Basin—Rock drills)

L 33170-66 EWT(1) GW

ACC NR: AP6014280 (N) SOURCE CODE: UR/0213/66/006/002/0234/0239

AUTHOR: Kolesnikov, A. G.; Ponomarenko, G. P.; Boguslavskiy, S. G. 28 B

ORG: Marine Hydrophysics Institute, AN UkrSSR, Sevastopol' (Morskoy gidrofizicheskiy institut AN UkrSSR)

TITLE: Deep current in the Atlantic Ocean 12

SOURCE: Okeanologiya, v. 6, no. 2, 1966, 234-239

TOPIC TAGS: ocean current, ~~sea water~~, oceanographic expedition, ~~buoy current measurement~~ FLOW RATE

ABSTRACT: Ocean-current measurements made from buoys by the research ship "Mikhail Lomonosov" in the western equatorial Atlantic Ocean revealed a deep current of North Atlantic water moving southward along the South American coast at an average speed of ~20 cm/sec. Evidence of this current was previously given by Defant and Wüst (A. Defant, 1941, Die absolute topographie des physikalischen meeresniveaus und der Druckflächen, so wie die Wasser-bewegungen im. Atlantischen Ocean. Deutsche Atlantische Exped. "Meteor," 1925-1927, Wiss. Erg., 6(2); G. Wüst, 1958, stromgeschwindizkeiten und Strommungen in den Tiefen des Atlantischen Oceans, Deutsche Atlantische Exped. "Meteor," 1925, Wiss. Erg., 6). The current speed they accepted appears to be less than that measured with the Alekseyev flow meter on this expedition of the "Mikhail Lomonosov." It was shown that deep-current data, obtained by classic dynamic

Card 1/2 12 UDC: 551.465.5(263)

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

CA

13

Theory of the depth of the evaporation surface in the drying of flat bodies. A. V. LYKOV AND A. G. KOLESNIKOV. *J. Tech. Phys.* (U. S. S. R.) 2, 708-25(1932).—The process of drying is analyzed by considering separately the inner and the outer diffusion processes. The former is given by the heat conduction theorem of Fourier. The theory is compared in a series of graphs with the results obtained by others on the drying of wood, paper, lime and clay.

F. H. RATHMANN

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS — PROCESSES AND PROPERTIES INDEX

CA

2

Application of the optical method to the study of temperature field gradients in heated films with free heat flow. A. G. Kolesnikov. J. Exptl. Theoret. Phys. (U. S. S. R.) 7, 792-807 (1937).—Heat flow in a transparent medium is studied with an accuracy of ± 3% by measurements of n at various points. F. H. Rathmann

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

KOLESNIKOV, A. G.

"Theory of the Accumulation of Ice on the Sea's Surface," Works of Sci-Res Institution of the Main Administration of the Hydrometeorological Service USSR, Series V, No 12, 1946 (109-147).
(Meteorologiya i Gidrologiya, No 6 Nov/Dec 1947)

SO: U-3218, 3 Apr 1953

KOLESNIKOV, A. G.

PA 60T85

USSR/Oceanology Jul 1947
Temperature - Diurnal Variations

"Calculation of the Diurnal Temperature Variation on the Surface of the Sea," A. G. Kolesnikov, Marine Hydrophys Lab, Acad Sci USSR, 4 pp

"Dok Akad Nauk SSSR, Nova Ser" Vol LVII, No 2

Gives results of tests conducted to determine method of calculating diurnal temperature variation on surface of sea, using actinometric and meteorological means, to determine temperature balance of sea's surface. Submitted by Academician V. V. Shuleykin, 8 Jan 1947.

[illegible] 60T85

KOLESNIKOV, A. G.

"Temperature and Heat Waves in an Ice Cover" (Problemy Arktiki [Problems of the Artic] No 1, 1948)

SO: U-3039, 11 Mar 1953

KOLESNIKOV A. G.

Kolesnikov A. G. - "Methods for the determination of temperature coefficients of thermo-conductibity of ice by thermic waves," Problemy Arktiki, 1948 (Published in 1949), No. 3, p. 18-26

SO: U-4355, 14 August 53, (Letopis 'Zhurnal 'nykh Statey, No. 15, 1949.)

KOLESNIKOV, A. G.

O geo

Meteorological Abst.
Vol. 4 no. 3
March 1953
Radiation and
Temperature

4.3-159 551.525.5:536.2(47)

Kolesnikov, A. G., K izmeneniiu matematicheskoi formulirovki zadachi o promerzanii grunta. [A modification of the mathematical formulation of the problem of soil freezing.] *Akademiia Nauk SSSR, Doklady*, 82(6):889-891, Feb. 21, 1952. 3 refs., 9 eqs. MH-BH—At present, many investigations make the mistake of assuming that during soil freezing the water contained in the soil is transformed into ice. However, this is correct only for water in the free state, but combined water freezes later with significant decrease of soil temperature to below the freezing point. The increase of ice amount in the soil causes a decrease of specific heat of the soil and an increase of thermal conductivity of the soil. The author takes into consideration these peculiarities in the equations presented here. *Subject Headings:* 1. Soil freezing 2. Thermal conductivity 3. Soil temperatures 4. U.S.S.R.—*N.T.Z.*

Inst. Permafrost Studies im. Obruchev, AS USSR

KOLESNIKOV, A. G.

Meteorological Abst.
Vol. 4 No. 10
October 1953
Part 1
Radiation and
Temperature

4.10-158

551.526

Kolesnikov, A. G., O nagrevanii i okhlazhdenii vody v orositel'nykh kanalakh. [The warming up and cooling of water in irrigation canals.] *Akademiia Nauk, SSSR, Doklad,* 84(3):479-482, May 21, 1952. 14 eqs. DLC—The waters in irrigation canals continuously gain and lose heat with length and time; during the spring they increasingly gain heat and during autumn they lose heat as they approach the points of distribution. On the basis of a theoretical model of a canal of unit dimensions and unit velocity, the author develops equations for calculating the heat gain and heat loss of the water. *Subject Headings:* 1. Water temperature profiles 2. Heat balance 3. Irrigation canals.—*I.L.D.*

KOLESNIKOV, A.G.; MARTYNOV, G.A.

Calculation of the depth of ground freezing and thawing. Mat.po lab.issl.merzl.grunt.1:13-36 '53. (MLRA 7:2)
(Frozen ground)

KOLESNIKOV, A.G.

Calculating annual temperature cycles of waters in the southern seas. Trudy MGI 3:106-127 '53. (MLRA 7:5)
(Ocean temperature) (Deep sea temperature)

K... A. G.

2

[illegible] Kpod [illegible]

...erature variation of water in [illegible]
...Doklady, 92(1):37-10, Sept. 1, 1953. ref. 17 eqs. DLC—During the winter [illegible] formed on the surface, the water temperature of a reservoir is [illegible] with the bottom water layers which retain their [illegible]. Their content can be determined quantitatively by means of the curve of temperature distribution at the bottom during ice formation on the surface and it is shown that [illegible] can be determined from the march of temperature at the bottom during summer [illegible]. The equations for the march of temperature in the reservoir during winter is derived and its applications illustrated. *Subject Headings:* 1. Vertical water temperatures. 2. Reservoirs.—*I.L.D.*

Marine Hydrophysics Inst., AS USSR

KOLESNIKOV, A.G.

USSR

6.6-236

Kolesnikov, A. G. and Pivovarov, A. A. [illegible] 551.526.3 : 551.481 [illegible]

lished [Calculations of the cooling [illegible] *Doklady*, Moscow, 93(6), 1015 1016 [illegible] formation is an important one, but its beginning cannot be determined without taking into account the characteristics of the preceding [illegible] analyzed for a water body [illegible] on the values of total radiation, [illegible] vapor pressure and wind velocity. [illegible] is governed by turbulent exchange of such intensity that the coefficient of exchange Kt does not depend upon depth. The author derives equations for calculation of water temperature variations with depth and with time during the entire autumn cooling period. *Subject Headings*: 1. Water temperature [illegible] formation 3. Lakes and reservoirs. [illegible]

USSR/Geophysics - Sea temperatures FD 353

Card 1/1

Author : Kolesnikov, A. G.

Title : Calculation of the daily course of the temperature of the sea in accordance with the heat balance on its surface

Periodical : Izv. AN SSSR, Ser. geofiz. 2, 190-194, Mar/Apr 1954

Abstract : Solves the problem concerning the daily course of the temperature of the sea from the known behavior of the heat balance on its surface. Assumes that the propagation of heat in the sea is effected by both turbulent and radiative exchange. In the description of the latter the author takes into account that absorption of radiation varies in the various portions of the spectrum. The solution obtained is correct for periods of a year when the layer of the density discontinuity is located below the depth of penetration of the daily temperature fluctuations. Two references, Soviet.

Institution : Marine Hydrophysics Institute, Acad Sci USSR

Submitted : October 20, 1953

KOLESNIKOV, A. G.

"Formation of the Temperature of the Sea During the Period of Autumn Cooling" Trudy Mor. Gidrofiz. in-ta AN SSSR, 4, 1954, 3-14

The author solves the problem of the distribution of the temperature of the sea according to depths in the active layer and the variation of this distribution in time during the period of autumnal cooling as a function of the yearly course of the elements governing the heat balance and currents. As the original quantitites considered given are: yearly course of total radiation I_o, the effective radiation R_o, evaporation W_o, and the temperature of the air t_o and also the temperature of the water at the surface during the period of maximum summer heating t_m. The period of autumnal cooling is considered the time of lowering of water temperature from maximum summer heating until freezing. For the distribution of temperature deviations in the sea along the vertical from a certain mean value the autor solves the following equation: $t_T = Kt_{zz} + (1-A)\ (bJ/cr)\ \exp(-bz)\ -v_x t_x$, where T is the time, z is the depth, v_x is the velocity of flow in the x direction. The solution of this equation is given by a complex formula consisting of the sum of three polynomials. (RZhGeol, No 9, 1955)

SO: Sum-No 845, 7 Mar 56

KOLESNIKOV, A.G.; PIVOVAROV, A.A.

Calculation of heat balance and its individual components according to the atmospheric temperature. Trudy MGI 6:107-119 '55. (MLRA 9:6)
(Atmospheric temperature)

KOLESNIKOV, A.G.; PIVOVAROV, A.A.

Method of calculating soil temperature on the basis of a given state of atmospheric temperature. Vest.Mosk.un. 10 no.8:59-65 Ag '55. (MIRA 9:1)

1.Kafedra fiziki morya.
(Soil temperature) (Atmospheric temperature)

KOLESNIKOV, A. G.

USSR/Geophysics - Hydrophysics

Card 1/1 Pub. 22 - 18/59

Authors : Kolesnikov, A. G., and Pivovarov, A. A.

Title : Calculation of the daily temperature variation of a sea by the total radiation and temperature of the air

Periodical : Dok. AN SSSR 102/2, 261-264, May 11, 1955

Abstract : A method is described for determining the daily temperature variation of a sea by taking into consideration only the daily variations of the air temperature at a certain altitude and the total radiation of the sea surface and considering the sea surface albedo and thermal characteristics of the water and air. Two USSR references (1947-1954).

Institution : Acad. of Sc., USSR, Marine Hydrophysics Institute

Submitted : Academician V. V. Shuleykin, February 9, 1955

KOLESNIKOV, A.G.; PIVOVAROV, A.A.;

[redacted]

Feasibility of using air temperature as a basis for computing the resulting heat balance on a reservoir surface. Izv.AN SSSR.Ser. geofiz. no.5:534-540 My '56. (MLRA 9:8)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova. (Meteorology, Maritime) (Atmospheric temperature)

KOLESNIKOV, A.G.; BELYAYEV, V.I.

Crystallization of supercooled water during turbulent agitation. Izv. AN SSSR, Ser.geofiz. no.11:1322-1331 N '56. (MLRA 10:1)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova. (Ice crystals)

KOLESNIKOV, A.G.

KOLESNIKOV, A.G.; PIVOVAROV, A.A.

Calculating the rate of cooling of reservoirs in fall. Vest. Mosk. un. Ser. mat. mekh., astron., fiz., khim. 11 no.2:47-52 '56. (MIRA 10:12)

1. Kafedra fiziki morya i vod sushi Moskovskogo gosudarstvennogo univertiteta.

(Reservoirs)

KOLESNIKOV, A. [G.] Dr.

"On the Calculation of Daily Variations of Sea Temperature,"

paper delivered at the Ninth Pacific Science Congress, Bangkok, Thailand, 18-30 Novmeber 1957.

B-3,095,367, 7 Jan 58
Abst. Available

KOLESNIKOV, A.G.

AUTHORS: Berezin, S.I. and Kolesnikov, A.G. (Engineers). 114-7-14/14

TITLE: On the production of equipment for hydro-electric power stations by the French firm Neyrpic. (O proizvodstve oborudovaniya dlya gidroelektrostantsiy Frantsuzskoy firmoy Neyrpik.)

PERIODICAL: "Energomashinostroyeniye" (Power Machinery Construction) 1957, No.7, Vol.3, pp.37-40. (U.S.S.R.)

ABSTRACT : Neyrpic is described as one of the leading French firms manufacturing modern equipment for hydro-electric power stations. Although it holds no records for size or quantity of output of water turbines the firm is of interest to Soviet readers because of its great experience. The description given in the article was obtained during the course of a visit and from material published by the firm. A brief history of the firm is given with an account of the type of equipment produced. The main shops and services of the Grenoble works are described briefly. Special mention is made of the importance attached to experimental investigations. This includes a brief account of the hydraulics laboratory. The last part of the article describes some special features of production and the development of new designs of turbine. Special mention is made of the accuracy of workmanship which makes it largely possible to do away with preliminary assembly for purposes of verification. Attention is drawn to the

1/2 extensive use of welding and to the use of plastic labyrinth

KOLESNIKOV, A. G.

AUTHORS: Vovchenko, G.D., Professor
Kolesnikov, A.G., Professor

26-10-6/44

TITLE: Contribution of the Scientists of the Moscow Metropolitan University (Vklad uchenykh stolichnogo universiteta)

PERIODICAL: Priroda, October 1957, 46 No 10, pp 49-52 (USSR)

ABSTRACT: Scientists of the Moscow State University contribute to the International Geophysical Year by working on 19 different scientific problems. Members of the faculty of physics study the composition of atmospheric ozone in different altitudes, observe the aurora borealis from special stations in the Arctic and study the structure of the ionosphere. Important research work is conducted in the field of microseisms. As such observations require very sensitive appliances, the faculty of physics had to develop special measuring devices: a sea turbulimeter and a radioactive turbulimeter, the first of their kind in the world. The study of cosmic rays is conducted by the Institute of Physics at Moscow University. The Institute of Astronomy imeni P.K. Shternberg in cooperation with the Time Service of the Institute are collecting data that will permit better and more exact determination of time. Astrophysicists of the Institute conduct observations of the

Card 1/2

KOLESNIKOV, Arkadiy Georgiyevich

"Rate of Sea Ice Accumulation,"

paper presented at the National Acad. of Sciences(U.S) - Arctic Sea Ice Conference, Easton Md., 24-27 Feb 58.

comments B-3,800,702

Moscow State Univ

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000723810002-8"

Kolesnikov, A.G.

3(7) PHASE I BOOK EXPLOITATION SOV/2131

Akademiya nauk SSSR. Morskoy gidrofizicheskiy institut

Termika morya. Khimiya morya (Thermal Regime of the Sea. Chemistry of the Sea) Moscow, AN SSSR, 1958. 145 p. (Series: Its: Trudy, tom 13) Errata slip inserted. 1,300 copies printed.

Resp. Ed.: A.G. Kolesnikov, Doctor of Physical and Mathematical Sciences; Ed. of Publishing House: L.K. Nikolayeva; Tech. Ed.: N.F. Yegorova.

PURPOSE: This collection of articles is intended for geophysicists, hydrophysicists, and oceanographers.

COVERAGE: These articles deal with problems in the physics and chemistry of sea water. Individual papers treat the turbulent thermal conductivity and heat exchange in sea water, the pulsations in air temperature, the salinity of the Black Sea, the determination of calcium, magnesium, and copper in sea water, and the determination of sodium in atmospheric precipitates. Figures, tables, and graphs accompany the articles. There are 121 references: 92 Soviet, 18 English, 8 German, 2 French, and 1 Swedish.

Card 1/4

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3(7)

AUTHORS: Kolesnikov, A.G., and Belyayev, V.I. SOV/155-58-2-42/47

TITLE: On the Crystallization of a Super cooled Cloud on Interspersed Artificial Sublimation Centers (O kristallizatsii pereokhlazhdennogo oblaka na iskusstvennykh yadrakh sublimatsii, vvedennykh v nego putem zaseva)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Fiziko-matematicheskiye nauki, 1958, Nr 2, pp 200-203 (USSR)

ABSTRACT: The authors consider the isothermic crystallization of a cloud consisting of water vapor and water drops cooled to ca. $-10^{\circ}C$, the microstructure of which is independent of the local coordinates, and in which to a given moment a large set of sublimation kernels is interspersed. The authors establish a system consisting of six equations out of which the number of appearing crystals, the vapor concentration, and other characteristics of the sublimation process can be obtained as functions of the time.
There is 1 figure, and 3 references, 2 of which are Soviet, and 1 American.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova (Moscow State University imeni M.V.Lomonosov)

SUBMITTED: January 15, 1958

Card 1/1

Kolesnikov, A.G.

49-58-3-16/19

AUTHORS: Kolesnikov, A.G., Panteleyev, N.A., Pyrkin, Yu.G., Petrov, V.P., and Ivanov, V.N.

TITLE: Apparatus and Methods of Measuring Micro-Pulsations of Temperature and Flow-Rate in the Sea (Apparatura i metodika registratsii turbulentnykh mikropul'satsiy temperatury i skorosti techeniya v more)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Geofizicheskaya, 1958, Nr 3, pp 405-413 (USSR)

ABSTRACT: The instruments usually employed in measuring temperature, etc., in the sea have so long a period that they only measure averages. For the study of turbulent processes (e.g., turbulent heat flow, viscosity, etc.) it is necessary to have instruments with a short enough period. Temperature measurement is usually carried out either with a thermocouple or a resistance thermometer. The former measures the difference between the actual and the average temperature, whilst the latter measures also the actual temperature. The authors describe experiments of Urick and Searfoss (1948), Liebermann (1951), Kontoboytseva (1958) and English (1953) on temperature measurements, and ones by Bowden and Fairbairn (1952, 1956) and Obukhov (1951) on rate-of-flow measurements. The authors then discuss the basis of a new apparatus. The

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time constant must be less than 0.1 sec for the whole apparatus. The accuracy of measurement of temperature in a sea where the surface is ice-free must be ~0.001-0.005°C; if ice is present the required accuracy goes up to 0.0001°C. The accuracy of velocity measurements must be not less than 2-5 mm/sec for an ice-free sea and not less than 0.1 mm/sec for a sea shielded from wind effects by ice. To obtain correct recordings with the required accuracy, the whole apparatus must be stationary. The authors now describe their actual apparatus. The meter consists of measuring devices at two different levels, a distributing and balancing network, an amplifier and an oscillograph. The measuring device at the upper level has three constituents: for measuring true velocity, true temperature, and the modulus of the velocity vector and the vertical component of the velocity vector. At the lower level, true velocity and true temperature are measured. Hence the meter records simultaneously: average temperature, the gradient of the average temperature; temperature pulsations average velocity and the

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gradient of the average velocity, pulsations of the modulus of the velocity vector and pulsations of its vertical component. Velocity signals go straight to the oscillograph; whilst temperature signals go to the oscillograph via a Wheatstone bridge and an amplifier. Power is supplied by the constant current from an accumulator. Temperature measurements were carried out with a thermistor with a temperature coefficient of resistance of 3-4% and a period of 0.08 sec. This was placed in one arm of the Wheatstone bridge. The power supplied to the thermistor was so chosen that the desired accuracy of 0.001°C could be obtained. Small deviations from the average velocity give diminished thermistor readings if the electric current is diminished or the average velocity increased. The device for measuring the average flow velocity consists of a 0.1 mm diameter, 28 mm long platinum wire, which is included in a bridge system. The wire is stretched perpendicular to the stream flow. Measurements are made at a constant current of 1-5 amps depending on the velocity. The device for measuring the modulus of the velocity vector and of the vertical component has two platinum wires in the bridge system. They are set at right

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angles to each other; their bisector is in the direction of the current and lies in the vertical plane. Vertical components of flow are measured by the resultant asymmetry of the system with respect to the flow. The meter altogether consists of two parts, both of which are attached to different parts of a steel cable at a vertical distance apart of from 0.5 to 2.0 m. The basic part (which can move freely round a vertical axis) is at the top. A vane keeps the apparatus oriented into the current. The measuring elements are placed at the front to reduce the effect of disturbance. All but 5-6 mm of the thermistor are enclosed in an ebony casing from which leads run back through a tube to the centre of the apparatus. A lead counterweight is employed to keep the meter horizontal. The measuring elements are protected from mechanical damage by a wire grid. The temperature measurer was graduated in the interval 5.0-30.0°C with a Beckmann thermometer for different currents in the thermistor. The velocity measurer was graduated in the range 0-50 cm/sec.

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The instrument is let down from a winch. After it has been kept at the right depth for 3-5 minutes the oscillograph is switched on and measurements are made. The authors give examples of oscillograms obtained and their interpretation. They assert that the meter seems well adapted for measurements on turbulence. There are 11 figures and 7 references, of which 5 are English and 2 Russian.

ASSOCIATION: Moscow State University imeni M.V. Lomonosov (Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova)

SUBMITTED: March 19, 1957.

AVAILABLE: Library of Congress.

Card 5/5

30-58-4-17/44

AUTHORS: Grabovskiy, V. I., Professor; Kolesnikov, A. G., Professor; Ivanov, A. A., Doctor of Physical and Mathematical Sciences

TITLE: Research Done During the Expedition of the "Mikhail Lomonosov" (Ekspeditsionnyye issledovaniya na sudne "Mikhail Lomonosov") Studies of Hydrophysics in the Atlantic (Gidrofizicheskiye raboty v Atlanticheskom okeane)

PERIODICAL: Vestnik Akademii Nauk SSSR, 1958, Nr 4, pp. 86-90 (USSR)

ABSTRACT: The present investigations of oceans and seas show that their most essential processes are dependent on the thermal and dynamic interaction of the ocean and the atmosphere. Therefore the main interest is directed to the investigation of the heat exchange processes between atmosphere and ocean, to the distribution of heat in quantities of water as well as to the formation of streams and waves. Then the authors report in detail on the future research within the frame of the program of the International Geophysical Year. According to a decision of the Committee for the execution of the works of the MGG the investigations in the North Atlantic are to be carried out by the scientific research ships "Mikhail Lomonosov"

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Research Done During the Expedition of the "Mikhail Lomonosov". Hydrophysics in the Atlantic

(Figure 1), "Ekvator" and "Sevastopol". The "Mikhail Lomonosov" was built in the "Neptun" ship yards in Rostok (DDR), it has a displacement of 6000 t and can also be used for works in ice. Its deck was made longer and a landing place for helicopters was incorporated. The ship has special devices and equipment, among others a deep-sea hoist for anchoring down to 15000 m, 8 hydrologic hoists of the "Okean"-type down to 4000 m, 3 echosonic fathometer automatic recorders down to 12000 m, 1 echosonic fathometer of the "Lodar"-type for vertical and horizontal probing. Then a workshop for experiments and 16 laboratory rooms are installed aboard the ship. The average speed of the ship is 13 knots and it has an operating range of about 11000 miles. The maiden voyage was made for testing the equipment of the ship (Figure 2). But also a number of works of general kind were carried out. Also a group of German scientists under the direction of Doctor E. Bruns took part in this expedition. The second voyage is shown in Figure 3 and is supposed to include the collaboration of all three ships. The main oceanographic work of this voyage will be carried out according to the plan by the MGG, which is further detailed. The "Mikhail Lomonosov" started on this voyage which will last 4 months

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30-58-4-17/44

Research Done During the Expedition on the "Mikhail Lomonosov." Hydrophysics in the Atlantic

on February 23, 1958. There are 3 figures.

1. Oceanography--Atlantic Ocean 2. Oceanography--Instrumentation

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~~3(7)~~ 3,5000 SOV/155-58-4-32/34

AUTHORS: Kolesnikov, A.G. Belyayev, V.I.

TITLE: On the Calculation of the Rate of Crystalline Growth of an Undercooled Cloud Under Influence of Hard Carbonic Acid Gas (K raschetu skorosti kristallizatsii pereokhlazhdennogo oblaka pri vozdeystvii na nego tverdoy uglekislotoy)

PERIODICAL: Nauchnyye doklady vysshey shkoly, Fiziko-matematicheskiye nauki, 1958, Nr 4, pp 199 - 206 (USSR)

ABSTRACT: The authors propose to calculate the process of artificial crystallization of a cloud under an influence of CO_2 on the basis of the following simple scheme: The process is understood as a diffusion of ice particles arising under the influence of hard carbon dioxide, and as the distillation of water from the drops on the ice crystals. The calculation according to this scheme is carried out under the simplest assumptions (horizontal, thin, infinite cloud; linear diffusion of CO_2 etc). It is proposed to verify experimentally the obtained formulas in order to obtain indications for those facts which are not taken into account in the

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3(7) SOV/155-58-5-19/37

AUTHORS: Kolesnikov, A.G., Belyayev, V.I.

TITLE: On the Calculation of the Rate of Crystalline Growth of a Supercooled Cloud Under Influence of Ice-Forming Particles

PERIODICAL: Nauchnyye doklady vysshey shkoly. Fiziko-matematicheskiye nauki, 1958, Nr 5, pp 102-107 (USSR)

ABSTRACT: The paper consists of an introduction (section 1) in which the author refers especially to the papers of V.Ya.Nikandrov, G.M. Bashkirova, P.N. Krasikov and others, and of 2 further sections. In section 2 he considers the onedimensional problem analogously to [Ref 11] : In the starting moment the ice-forming particles are in a vertical plane and then diffuse in horizontal direction, whereby simultaneously crystals are formed on them. For the steam influx to the crystals the author obtains

$$q_2 = 4\pi D(u-u_2)\int_0^{\tau} d\tau_2 \int_{-\infty}^{\infty} n_2\bar{r}_2 dx_2$$

by similar considerations as in [Ref 11], where

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r_3 magnitude of the particle. In section 3 the author tries to extend the obtained results to the two-dimensional case occurring in natural situations.
There are 13 references, 8 of which are Soviet, 2 English, 2 Japanese, and 1 American.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova (Moscow State University imeni M.V. Lomonosov)

SUBMITTED: May 8, 1958

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49-58-5-7/15

AUTHORS: Kolesnikov, A. G. and Belyayev, V. I.

TITLE: The Crystallization of Super-cooled Water Clouds by Freezing of Drops (O kristallizatsii pereokhlazhdennogo vodnogo oblaka putem zamerzaniya kapel')

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Geofizicheskaya, 1958, Nr 5, pp 636-642 (USSR)

ABSTRACT: Ref.1 considers the process of crystallization of super-cooled water vapour when crystals arise on sublimation nuclei. This would occur in seeding experiments, but in natural processes it is more likely to occur by freezing of the water droplets. It is assumed that the cloud is homogeneous (i.e., the functions used do not depend on coordinate) so that calculations can be made per unit volume. At the start the cloud consists of water vapour and drops in dynamic equilibrium. It is assumed that at a certain time, due to a change in temperature, etc., metastability occurs. This moment is taken as the onset of crystallization. Since the saturation vapour pressure is lower over ice than water, the ice crystals grow at the expense of the water vapour. This loss of water vapour causes the unfrozen drops to evaporate and the process continues till the whole cloud has frozen. The freezing process occurs almost instantly that a seed crystal appears. The probability of

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appearance seed crystal in unit volume of fluid is a function of temperature (Ref.2). Taking the process to be isothermal, the probability of freezing is proportional to the volume. Thus, if n' drops freeze/unit time from n drops (the same size) then: $n'' = \beta vn$ (1)
where β = const, v is the volume of a drop. Since the initial dimensions of cloud droplets are small and crystals at this stage do not grow to a large size, the evaporation of drops and the growth of crystals can be considered to be controlled by molecular diffusion of water vapour. To describe this change Maxwell's equation is used for drops (Eq.2) and crystals (Eq.3). (Where r_1 is the radius of a drop; u_1 is the vapour concentration corresponding to equilibrium of vapour and drops; r_2 and u_2 are the same quantities for a crystal; D is the molecular diffusion coefficient for the vapour; ρ_1 and ρ_2 are the densities of water and ice; u is the vapour concentration in the absence of drops and crystals) u_1 and

u_2 are considered constant. Since at the initial moment, the drops are in equilibrium with the vapour, therefore $u(0) = u_1$. If the radius of the drops at this moment is R_1, then its radius at any later moment will be given by Eq.(2) with the boundary conditions Eq.(4). This gives Eq.(5). This indicates that drops can be divided up according to their initial radius - drops between R_1 and $R_1 + dR_1$ will remain similar all their lives and will disappear at the same time τ' . Thus the behaviour of each group can be calculated separately and the final result got by summing. Let the initial distribution be described by the function $\varphi(R_1)$. Then the number of drops at the initial moment in such a group is: $\varphi(R_1)dR_1$ (6)

Extend the function to $f_1(\tau, R_1)$ so that the number of drops in the range $(R_1, R_1 + dR_1)$ at any moment τ is equal to: $f_1(\tau, R_1)dR_1$. (7)

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From Eq.(1) we have the number of drops in unit time, from this group, which turn into crystals (Eq.8). Using Eq.(6), it is found that $f_1(\tau R_1)$ can be expressed by an integral equation, which is most conveniently expressed in the form Eq.(9). At a certain moment τ' the considered group disappear as a result of evaporation. At this moment R_1 is given by Eq.(10) from Eq.(5). Eq.(10) permits the initial radius to be expressed in terms of the moment of disappearance of the drop $(R_1 = Z(\tau'))$. To distinguish one group of similar drops from another group, the initial radius of the drop is used. Crystals must be defined by two parameters: R_1 defining the drops from which they arise and τ'' the moment of freezing of the drop. The description of the crystallization process in terms of these two variables is analogous to the problems of hydrodynamics in Lagrangian variables. A function $f_2(\tau'', R_1)$ is introduced so that the number of crystals formed at time τ'' from drops with

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initial radii in the range R_1 to $R_1 + dR_1$ is equal to $f_2(\tau", R_1)dR_1$. The number of crystals formed per unit time from this group is given by Eq.(11). Considering next the equation for the change in concentration of vapour $u(\tau)$ during crystallization, this change/unit time will be equal to the difference between the total vapour flow from the evaporating drops and total vapour flow to the growing crystals, Eq.(12). (P_1 is the vapour flow from the drops; P_2 is the vapour flow to the crystals). P_1 is first found (Eq.13) and then P_2 . This latter can be obtained by integrating Eq.(3) with the boundary conditions (Eq.14), giving Eq.(15) which represents the radius of the crystal as a function of $r_2(\tau, \tau", R_1)$. Eq.(16) gives the flow to a crystal arising at the moment $\tau"$. At $\tau"$ only those drops can freeze for which $R_1 > Z(\tau')$ $[\tau' = \tau"]$. Therefore Eq.(16) is integrated for R_1 between the limits $Z(\tau")$ and R_1^{max}. On integrating again for $\tau"$ between the limits 0 and τ ,

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Eq.(17) for P_2 is obtained. Eq.(12) can be written in the form Eq.(18), using Eqs.(13) and (17). Thus five equations (Eqs. 5, 15, 9, 11 and 18) have been obtained for five unknowns r_1, r_2, n_1, n_2 and u, which can therefore be found and hence the crystallization process studied. The initial boundary conditions for the system are that: $u = u_1$, $f_2 = 0$ when $\tau = 0$; $\tau'' = 0$. Eliminating r_1, r_2, f_1 and f_2 from Eq.(18) by use of the other equations, an equation for u is obtained which can be written in the form Eq.(19) (where Φ is a function of $u(\tau)$ depending on the value of u in the range $[0, \tau]$), Eq.(19) can be solved by a numerical method which is discussed below. Taking a small value of $\tau = \tau_1$ u is calculated linearly in the region $[0, \tau_1]$ and $du/d\tau$ for the point τ_1 is calculated from Eq.(19). The process is then repeated until the final value of u is found. Once u has been found, the other unknowns can be easily

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determined. Assuming these solutions are Eqs.(20),(21), (22) and (23), then, firstly, it is possible to determine the overall number of drops $n_1(\tau)$ and crystals $n_2(\tau)$ in the cloud at any time and, secondly, to determine the density of distribution by dimensions $\nu_1(\tau, r_1)$ and $\nu_2(\tau, r_2)$ at any time - these functions can be found from experiments comparatively easily. The functions $n_1(\tau)$ and $n_2(\tau)$ are obtained from the definition of the functions f_1 and f_2. $\nu_1(\tau, r_1)$ and $\nu_2(\tau, r_2)$ are obtained by considering a group of drops the initial dimensions of which lie in the range $[r_1, r_1 + dr_1]$ where dr_1 is given by Eq.(24). The number of drops in this group at the moment τ is $g(\tau, R_1)dR_1$, which, using Eq.(24) becomes:

$$g(\tau, R_1)\frac{dr_1}{\frac{\partial p(\tau, R_1)}{\partial R_1}}$$

Card 7/9 Eq.(25) gives the number of drops at time τ with dimensions

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in the range $[r_1, r_1 + dr_1]$. From Eq.(22) it is possible to find $R_1 = S_1(r_1, \tau)$ as follows from Eq.(5). Substituting in Eq.(25) gives $\nu_1\{\tau, S_1(r_1, \tau)\} = \nu_1(r_1, \tau)$. At time $\tau'' < \tau$, drops with initial dimensions in the range $[R_1, R_1 + dR_1]$ freeze. If the crystals which arise from these at time τ are to have dimensions in the range $[r_2, r_2 + dr_2]$, the conditions Eq.(26) and Eq.(27) on R_1 and dR_1 must be imposed (where S_2 is determined from Eq.(23)). The number of crystals (arising at a time $\tau'' < \tau$ in an interval $d\tau$) with dimensions at τ in the range $[r_2, r_2 + dr_2]$ is equal to Eq.(28) (where R_1 and dR_1 are defined by Eqs.26 and 27). The differential with respect to τ'' in this expression, after substituting Eq.(26) for R_1,

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SOV/ 49-58-11-8/18

AUTHORS: Kolesnikov, A. G. and Speranskaya, A. A.

TITLE: Apparatus for Determination of Heat Flux (Pribor dlya opredeleniya teplovykh potokov)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Geofizicheskaya, 1958, Nr 11, pp 1351-1359 (USSR)

ABSTRACT: The apparatus described enables thermal flux (and hence conductivity) to be determined by means of temperature measurements on a slab of the material under investigation to which a sinusoidally varying heat source is applied. The temperature t at a depth z in the slab is made to vary according to:

$$t = t_0 \cos \omega\tau \qquad (1)$$

where τ is time and $\omega = 2\pi/T$, and where T is the period. The principle of the method is to measure the heat fluxes Q_1 and Q_2 at depths z and $z + \delta$ respectively. These heat fluxes are given by the following expressions:

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$$Q_1 = t_o\sqrt{\frac{2\pi}{T}}\sqrt{\lambda c \rho}\exp\left(-\sqrt{\frac{\pi}{aT}}\,z\right)\cos\left\{\frac{2\pi t}{T}-\sqrt{\frac{\pi}{aT}}\,z+\frac{\pi}{4}\right\} \quad (2)$$

$$Q_2 = t_o\sqrt{\frac{2\pi}{T}}\sqrt{\lambda c \rho}\exp\left(-\sqrt{\frac{\pi}{aT}}\,\overline{z+\delta}\right)\cos\left\{\frac{2\pi t}{T}-\sqrt{\frac{\pi}{aT}}\,\overline{z+\delta}+\frac{\pi}{4}\right\} \quad (3)$$

Here λ is the coefficient of thermal conductivity (to be determined), ρ is density and the other symbols have their standard significance. In a typical experimental arrangement z would be about 30 cm and δ some 25 or 30 mm. The heat fluxes are measured in a suitably constructed and calibrated calorimeter in which the temperature difference across the slab is measured by means of a thermopile. Details of the construction of the calorimeter are illustrated diagrammatically and there is also a photograph giving an overall view. A section is devoted to describing the calibration of the apparatus, and another section to discussing experimental errors. The calibration is

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effected by measurements on a sample of known thermal conductivity. Experimental errors are kept to a minimum by suitable insulation and thermostatically controlled cooling of the surfaces; end effects are eliminated by a differential technique. The apparatus provides a simple, quick and reasonably accurate (about 1%) method of measuring heat flux across thin layers of poorly conducting materials.

There are 8 figures and 1 reference, which is Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

SUBMITTED: February 27, 1957

SOV/ 49-58-12-5/17

AUTHORS: ~~Kolesnikov, A. G.~~ and Speranskaya, A. A.

TITLE: Diurnal Variation of Temperature of Water in Cisterns and Rate of Thawing of the Lowest Surface of the Ice Cover in the Spring (Sutochnyy khod temperatury vody i skorost' staivaniya ledyanogo pokrova snizu na vodokhranilishchakh v vesenniy period)

PERIODICAL: Izvestiya akademii nauk SSSR, Seriya geofizicheskaya, 1958, Nr 12, pp 1463-1469 (USSR)

ABSTRACT: In order that the investigation of water temperature should give the true results, the meteorological data affecting its diurnal variations should be known. The absorption of solar radiation by the ice cover can be defined from the expression Eq.(1) (Ref.1). Fig.1 shows this absorption as a rate of 1.6 m^{-1}. The decrease of solar radiation with depth can be defined as the function (2), where $I(\tau)$ - the total thermal effect of the solar spectrum, A - albedo of ice cover, p - coefficient showing which part of the solar energy reaches a given depth, β - total coefficient of decrease

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of solar energy with depth, τ - time. The total thermal effect of the solar spectrum can be defined as the function (3), while the rate of heat conduction in water can be calculated from Eq.(4) where t - deviation of water temperature from its mean, k - coefficient of turbulent heat exchange, $\omega = 2\pi/T$, T - period (1 day), c and ρ-heat capacity and density of water. When the conditions (5) and (6) are applied, the solution of Eq.(4) will take the form (7). The Eq.(8) for the determination of $U(\tau)$ can be found when the Eq.(7) is substituted for Eq.(4). Then the function $V(z, \tau)$ will describe the Eq.(9) if the conditions (10) are satisfied. The solution of the Eq.(9) will take the form Eq.(11). By substituting Eq.(11) and Eq.(8) for Eq.(7), the expression (12) is found, which describes the deviation of water temperature from its mean value. In order to compare the theoretical calculations with the experimental data, the Eq.(12) should be written in the form Eqs.(13) and (14). To determine the various values of the expression (13) a series of experimentaions was carried out. Some results are shown in the form of graphs representing the data taken from a water

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cistern during the night of April 11-12, 1954. Fig.2 shows the total solar radiation inside the ice cover (I) and reflected from its surface (II). Fig.3 shows the heat exchange at the water-ice surface during the same period. The distribution of the temperature in the upper 2 m of water layer is shown in Fig.4, where 1 - temperature calculated from Eq.(13), 2 - the measured temperature. The Eq.(15) can be used for determination of the maximum value of the rate of thawing below the ice cover, where γ - latent heat of thawing ice, ρ_1 - ice density, ξ - thickness of ice, λ_1 - heat conductivity of ice, t_1 - ice temperature. When the temperature of ice is near zero degrees, the expression (16) can be used. This expression, however, can be used only in the case of a rapid thaw at the rate of 5.5 mm per hour,

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Diurnal Variation of Temperature of Water in Cisterns and Rate of Thawing of the Lowest Surface of the Ice Cover in the Spring

or higher. There are 4 figures and 4 Soviet references.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University, imeni M. V. Lomonosov)

SUBMITTED: February 27, 1957.

Card 4/4

S/124/60/000/006/015/039
A005/A001

Translation from: Referativnyy zhurnal, Mekhanika, 1960, No. 6, p. 113, # 7594

AUTHORS: Kolesnikov, A.G., Pivovarov, A.A.

TITLE: On the Correlation Between the Coefficients of Turbulence and Heat Exchange in the Atmospheric Layer Near the Sea Surface

PERIODICAL: Tr. Morsk. gidrofiz. in-ta. AN SSSR, 1958, Vol. 13, pp. 65-72

TEXT: The author considers two methods for determining the turbulent heat current through the sea surface. In the first variant, the heat current is adopted in the form:

$$Q = \alpha [t_1(0, \tau) - t_2(h, \tau)],$$

where t_1 is the temperature at the sea surface, t_2 is the temperature of the air at the altitude h, α is the heat exchange coefficient. In the second variant, it is assumed

$$Q = -c_2 \varrho_2 \left(k_2 \frac{\partial t_2}{\partial z} \right)_{z=0},$$

where c_2, ϱ_2 are the heat capacity and density of the air, k_2 is the turbulence coefficient. The two methods mentioned are compared with each other with respect

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KOLESNIKOV, A. G.

"The Vertical Turbulent Exchange Under Conditions of Stabile Sea Stratification," report to be submitted for the Intl. Oceanographic Cong. New York City, 31 Aug - 11 Sept 1959.

(AXXXXX: Phys. Faculty, Moscow State University)

Kolesnikov, A.G.

3(4,7) PHASE I BOOK EXPLOITATION SOV/[illegible]

Vsesoyuznoye gidrologicheskoye s"yezd, 3rd, Leningrad, 1957.

Trudy...t. III: Sektsiya gidrofiziki (Transactions of the 3rd All-Union Hydrological Convention. v. 3: Hydrophysics Section) Leningrad, Gidrometeoizdat, 1959. 470 p. Errata slip inserted. 2,000 copies printed.

Sponsoring agency: Glavnoye upravleniye gidrometeorologicheskoy sluzhby pri Sovete Ministrov SSSR.

Resp. Ed.: V.A. Uryvayev; Ed.: V.S. Protopopov; Tech. Ed.: M.I. Braynina.

PURPOSE: This work is intended for meteorologists, hydrologists, and hydrophysicists, particularly those engaged in the study of snow and ice and evaporation processes.

COVERAGE: This book contains papers on hydrophysics which were presented and discussed at the Third All-Union Hydrological Conference in Leningrad, October 1957. The Conference published 10 volumes on various aspects of hydrology of which this is number 3. The editorial board in charge of the series include: V.A. Uryvayev (Chairman), O.A. Alekin, Ye.V. Bliznyak (deceased), O.N. Borsuk, M.A. Velikanov, L.K. Davydov, A.P. Domanitskiy, G.P. Kalinin, S.N. Kritskiy, B.I. Kudelin, L.F. Mancim, M.F. Menkel', B.P. Orlov, I. V. Popov, A.K. Proskuryakov, D.L. Sokolovskiy, O.A. Spengler, A.I. Chebotarev, and S.K. Cherkavskiy. This volume is divided into 2 sections: the first contains reports from the subsection for the study of evaporation processes, and the second contains reports from the snow and ice subsection. References accompany each article.

Kolesnikov, A.G. [Professor, Doctor of Physical and Mathematical Sciences] and A.A. Pivovarov [Candidate of Physical and Mathematical Sciences] Computing the Rate of Autumnal Cooling Along a River 270

Braslavskiy, A.P. [Candidate of Technical Sciences, GGI Leningrad] Computing the Ice Regimen of the Northern Kazakhstan Lakes 278

Panov, B.P. [Docent, Candidate of Geographical Sciences, LGMI Leningrad] Long-range Changes in the Ice Break-up and Freeze-up Times of Rivers and Lakes and the Question of Extra Long-range Forecasting 287

Ginzburg, B.M. [Candidate of Technical Sciences, TsIP Moscow] Fundamentals of the Method of Long-range Forecasting of Ice Break-up on Rivers 296

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Card 4/

KOLESNIKOV, A.G.

Some results of direct determination of the intensity of vertical turbulent exchange in the sea. Nek. probl. i rez. okean. issl. no.1: 20-28 '59. (MIRA 13:2)

(Oceanographic research)

69790

S/055/59/000/06/17/027
B006/B005

10.4000

AUTHORS: Kolesnikov, A. G., Ivanov, V. N.

TITLE: A Correlometer for Investigating the Structure of Turbulence of Natural Water- and Air Flows

PERIODICAL: Vestnik Moskovskogo universiteta. Seriya matematiki, mekhaniki, astronomii, fiziki, khimii, 1959, No. 6, pp. 146 - 149

TEXT: To solve problems of turbulent flows it is necessary to know the statistical characteristics of the fields(correlation coefficient, correlation- and structural functions, temperature, concentration, etc). Two types of so-called correlometers, automatically working devices, are used to record these characteristics. One type performs an automatic evaluation of the oscillograms, the other type an automatic computation of the required characteristics without a previous recording of field fluctuations. No standard device of the latter type is produced in industry at present. A correlometer designed for automatic computation of statistical characteristics of turbulent fields in water- and air flows under natural conditions was worked out in 1957-1958 at the kafedra fiziki morya i vod sushi fizicheskogo fakul'teta MGU (Chair of Physics of the Sea and

Card 1/2

KOLESNIKOV, A.G.

Vertical turbulent exchange in the ocean under conditions of a stable stratification. Izv. AN SSSR. Ser.geofiz no.11:1614-1623 N'60. (MIRA 13:11)

1. Moskovskiy gosudarstvennyy universitet im.M.V.Lomonosova. (Ocean) (Turbulence)

KOLESNIKOV, A.G.

Papers submitted for the 10th Pacific Science Congress, Honolulu, Hawaii 21 Aug-6 Sep 1961.

KOLESNIKOV, A. G., PIVOVAROV, A. A., and IVANOVA, Z. S., Moscow State University, Physical Faculty, Chair of Marine Physics and Terrain Waters - "On the calculation of rate of radioactivity spreading in depths" (Section VII.B.6)

KOLTUN, V. M., Institute of Zoology - "The method of spicule analysis and possibilities of its use in paleogeographical studies of the Pacific Ocean" (Section III.C)

KORENEVA, Ye. V., Institute of Geology - "Distribution of spores and pollen of terrestrial plants in bottom sediments of the Pacific" (Section XII.A)

KORT, V. G., Director, Institute of Oceanology - "The heat exchange between the Antarctic waters and the adjacent oceanic waters" (Section VII.D.1)

KOSHLYAKOV, M. N., Institute of Oceanology - "An example of the computation of the deep currents in the northeastern Pacific" (Section VII.B)

KOZLYANINOV, M. V., and KOBLENTS-MISHKE, Olga I., Institute of Oceanology - "The interrelation between turbidity, phytoplankton and primary production" (Section III.C.4)

KOZLYANINOV, M. V., Institute of Oceanology - "On the relation between water transparency and the character of currents in some areas of the Pacific Ocean" (Section VII.B)

KOSMINSKAYA, Irina P., KRAKSHINA, R. M., ZVERAK, P. S., ZVEREV, S. M., DAVYDOVA, N. I., and GAL'PERIN, D. I., Institute of Earth Physics imeni O. Yu. Schmidt - "Structure of the earth crust in the transition zone from the northwestern part of the Pacific to the Asiatic continent" (Section VII.C.2)

KOSMINSKAYA, Irina P., KRAKSHINA, R. M., and ZVEREV, S. M., Institute of Earth Physics imeni O. Yu. Schmidt - "Specific features of the sedimentary layer in the Okhotsk Sea and in the adjacent parts of the Pacific" (Section VII.C.2)

KOVYLIN, V. M., ZVEREV, S. M., UDINTSEV, G. B., BELOUSOV, Yu. P., SLOBODA, N. N., and LISITSKIY, G. M., Institute of Oceanology - "On the relation between sedimentation and bottom topography in the northwestern part of the Pacific Ocean" (Section VII.C.1)

KROPOTKIN, P. N., Institute of Geology - "The tectonic map of the Pacific Ocean and the circum Pacific mobile belt (scale 1:10,000,000)" (Section VII.C)

LAVRENT'YEV, M. A., and SAVARENSKIY, Ye. F., The Siberian Department of the Academy of Sciences USSR - "On the results of investigations of tsunami in the USSR" (Section V.B.1)

LEONT'YEVA, V. V., Institute of Oceanology - "Hydrological data involved with oceanic troughs in the Pacific and some problems connected with prospect research" (Section VII.B)

LEVIN, M. G., Institute of Ethnology - "Once more on the Ainu problem" (Section XI.B)

LISITSYN, A. P., Institute of Oceanology - "The composition of organic suspended material in the Pacific in connection with the problems of sedimentation" (Section VII.C.1)

LISITSYN, A. P., Institute of Oceanology - "Bottom sediments in the Antarctic" (Section VII.D.1)

LUK'YANOV, V. V., Institute of Oceanology - "Cyclonic activity and climatologic fronts in the northern part of the Pacific Ocean" (Section VII.A)

LYUBIMOVA, T. G., All-Union Scientific Research Institute of Marine Fishing and Oceanography - "Some results of icthyological investigations in the gulf of Alaska" (Section III.C)

MAGNITSKIY, V. A., Moscow State University, Physical Faculty, Chair of Hard Crust - "Geophysical data and the problem of the origin of the Pacific Ocean" (Section VII.C.2)

MEDVEDEV, V. S., Institute of Oceanology - "The specific features of bench formation in tidal seas" (Section VII.C.1)

MOKIYEVSKIY, O. B., Institute of Oceanology - "Qualitative-quantitative distribution of the litheral fauna and flora in the northwestern part of the Pacific" (Section III.C)

MURDMAA, Ivan O., Institute of Oceanology - "The process of marine sedimentation in the areas of the Kuril isle arc" (Section VII.C.1)

S/020/60/133/04/22/031
B019/B060

AUTHORS: Kolesnikov, A. G., Belyayev, V. I.

TITLE: Calculation of the Shift of the Crystallization Front in an Undercooled Cloud Under the Action of CO_2

/C

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 133, No. 4, pp. 835-837

TEXT: It is assumed in first approximation that the propagation of crystallization in an undercooled cloud takes place like a diffusion of ice nuclei due to the action of CO_2. Proceeding from this assumption, the authors had in a previous paper (Ref. 1) obtained the system (1) of differential equations for the calculation of this process. The authors discuss the density of the vapor sources (formulas (2) and (3)) and the radius of the droplets (formula (4)) and next, they adapt system (1) to results of observation. Crystallization in a cloud was found to take place in a narrow zone which divides the cloud into a crystallizing and a noncrystallizing part. An important part in this zone is played by sublimation, while the diffusion of vapor and of the droplets plays but

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Calculation of the Shift of the Crystallization Front in an Undercooled Cloud Under the Action of CO_2

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an unimportant part. For this case (1) is replaced by (5) which allows the determination of the vapor concentration, the droplet size, and the average size of the ice crystals. Numerical calculations of the vapor concentration in a cloud, which is important for determining the concentration front of a cloud subjected to the action of solid CO_2, revealed that the large drops and crystals play a decisive role for the vapor equilibrium, since the dependence of the vapor concentration on the radius can be neglected here. With the quick-operation computer "Strela" the authors made numerical calculations of the shift of the crystallization front as a function of the initial concentration of ice nuclei and of the turbulence coefficients, and, as a solution, the crystallization front was obtained as a function of time (Fig. 2). It is finally pointed out that no precise knowledge of the concentration of ice nuclei is so far available; the same holds for turbulence coefficients. By comparing the results obtained here with results obtained from the observation of the action of solid CO_2 on undercooled clouds, it is possible to make an estimation of the abovementioned, little known quantities. There are 2 figures, 1 table, and 2 Soviet references.

√c

Card 2/3

Calculation of the Shift of the Crystallization Front in an Undercooled Cloud Under the Action of CO_2

S/020/60/133/04/22/031
B019/B060

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

PRESENTED: February 15, 1960, by V. V. Shuleykin, Academician

SUBMITTED: December 14, 1959

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3.5900

S/169/62/000/011/022/077
D228/D307

AUTHORS: Kolesnikov, A.G. and Belyayev, V.I.

TITLE: Methods of estimating the crystallization of supercooled clouds under artificial influence

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 11, 1962, 30, abstract 11B190 (In collection: Issled. oblakov, osadkov i grozovogo elektrichestva, M., AN SSSR, 1961, 10-15)

TEXT: The results of work (RZhGeofiz, no. 1, 1960, 861) are reviewed, and it is shown that they can be extended to the case of a cloud which is polydispersed at the initial moment of time. [Abstracter's note: Complete translation]

Card 1/1

KOLESNIKOV, A.G.; KONONKOVA, G.Ye.

Instrumental determination of energy transmitted by normal wind pressure to the surface of sea waves. Izv. AN SSSR. Ser. geofiz. no.10:1551-1559 O '61. (MIRA 14:9)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
(Winds) (Waves)

32702
S/049/61/000/012/006/009
D207/D303

3,5910

AUTHORS: Belyayev, V.I., Gayvoronskiy, I.I., Kolesnikov, A.G. and Krasnovskaya, L.I.

TITLE: Propagation of crystallization in supercooled clouds on introduction of solid carbon dioxide

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya geofizicheskaya, no. 12, 1961, 1844 - 1851

TEXT: The paper reports experimental work on dispersal of clouds by seeding with CO_2, carried out by I.I. Gayvoronskiy and L.I. Krasnovskaya; the experimental results are compared with theoretical relationships derived by the other two authors (A.G. Kolesnikov and V.I. Belyayev). Experiments were carried out during autumn and winter of 1956 - 7 at the Tsentral'naya aerologicheskaya observatoriya (Central Aerological observatory) using aircraft of the ЛИ -2 (LI-2) type. The aircraft flew in a straight line over clouds of St and Sc type which were not thicker than 500 m and whose temperatures at the top

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did not exceed -4°C. The clouds were seeded with solid CO_2 granules of 0.5 - 1 cm diameter. The atmospheric pressure, relative humidity and air temperature were measured during seeding with an aircraft meteorological instrument СМ-43 (SM-43). Samples of the clouds were taken and examined microscopically. The amount of condensed water in the clouds was measured by Zaytsev's method [Abstractor's note: No details given]. The wind velocity was determined using a technique developed at the Gosudarstvennyy nauchno-issledovatel'skiy institut Grazhdanskogo Vozdushnogo Flota (State Scientific Research Institute of the Civil Air Fleet). After seeding, the aircraft flew above the clouds measuring the expansion of the cloudless zone produced by CO_2; this was continued until the cloudless zone filled again with clouds. Each experiment in air was preceded by soundings of the clouds from the ground. The results are presented in the form of the dependence (gradual increase) of the cloudless zone width, D, on time, τ, which represents propagation of a crystallization front in a cloud. The experimental curves were compared with the theory developed in 1958 by

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S/049/61/000/012/006/009
Propagation of crystallization ... D207/D303

A.G. Kolesnikov and V.I. Belyayev (Ref.4: Nauchn. dokl. vyssh. shkoly, fiz. mat. nauk, no. 4, 1958). The theory assumes that the process of propagation of a crystallization front in a supercooled cloud can be reduced to turbulent diffusion of ice nuclei produced by solid CO_2 and distillation of water from drops to crystals. For simplicity a cloud is assumed to be bounded by planes of infinite extent in horizontal directions. The cloud is also assumed to consist initially of droplets and particles all of the same size; appearance of particles of various sizes after seeding is allowed for. The theoretical and experimental curves showing $D(\tau)$ agreed satisfactorily, even quantitatively. The agreement indicated that crystallization fronts are very narrow and that their propagation is governed primarily by the turbulent diffusion coefficient K (dimensions $cm^2\ sec^{-2}$) and, to a lesser extent, by ε which is the density of ice nuclei (dimensions cm^{-2}) induced by CO_2. There are 4 figures and 4 Soviet-bloc references.

ASSOCIATION: Institut prikladnoy geofiziki, Akademiya nauk SSSR (Institute of Applied Geophysics, Academy of Sciences, USSR)

Card 3/4

KOLESNIKOV, A.G.; IVANOVA, Z.S.; BOGUSLAVSKIY, S.G.

Effect of stability on the intensity of vertical transport in the Atlantic Ocean. Okeanologiia 1 no.4:592-599 '61. (MIRA 14:11)

1. Morskoy gidrofizicheskiy institut AN SSSR.
(Atlantic Ocean--Hydrology)

S/169/62/000/008/054/090
E202/E392

AUTHOR: Kolesnikov, A.G.

TITLE: Principal scientific results of the sixth voyage of "M. Lomonosov"

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 8, 1962, 3, abstract 8V14. (Tr. Morsk. gidrofiz. in-ta AN SSSR, no. 25, 1962, 3 - 16)

TEXT: The voyage took place during August - November, 1959 in the regions of the North Atlantic between 45 and 14 °N. Together with standard observations, a large number of observations were made using non-standard instruments (particularly in connection with the measurement of water and air temperature). The main results of the voyage were as follows: 1) all the data comprising the heat-balance were obtained; 2) approximate fluctuations of temperatures on the surface of the ocean were established (the dimensions of temperature heterogeneities with highest repetition were found in the North Atlantic 20 - 30 miles, in the regions of the Gulf Stream 6 - 8 miles and in the

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KOLESNIKOV, A. G. PANTELEYEV, N. A. PISAREV, V. D.

The Results of Direct Definitions of the Intensity of Deep-water Turbulent Diffusivity in the Atlantic Ocean.

report submitted for the 13th General Assembly IUGG, (Oceanography) Berkeley, California, 19-31 Aug 63

KOLESNIKOV, A.G.

Using data on the distribution of oxygen to determine the intensity of vertical exchange in the ocean. Okeanologiia 3 no.2:260-270 '63. (MIRA 16:4)

(Sea water--Oxygen content) (Ocean currents)

KOLESNIKOV, A.G.; PANTELEYEV, N.A.; PISAREV, V.D.; VAKULOV, P.V.

Deepwater autonomous turbulence meter, an instrument for recording the turbulent velocity fluctuation and the temperature of the ocean. Okeanologiia 3 no.5:911-921 '63. (MIRA 16:11)

KOLESNIKOV, A.G.; YEFIMOV, V.V.

Apparatus for measuring energy transmitted by normal wind pressure to sea waves. Okeanologiia 4 no.3:505-512 '64 (MIRA 18:1)

1. Morskoy gidrofizicheskiy institut AN UkrSSR i Moskovskiy gosudarstvennyy universitet, Kafedra fiziki morya i vod sushi.

KOLESNIKOV, A.G., kapitan-leytenant

How young officers learn to conduct training and exercises.
Mor. sbor. 47 no.4:47-50 Ap '64. (MIRA 18:7)

KOLESNIKOV, A.G.; PANTELEYEV, N.A.; PISAREV, V.D.

Direct determination of the intensity of turbulent exchange in the depths of the Atlantic Ocean. Dokl. AN SSSR 155 no. 4:788-791 Ap '64. (MIRA 17:5)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova. Predstavleno akademikom V.V.Shuleykinym.

KOLESNIKOV, A.G., doktor fiz.-mat. nauk, otv. red.; SKOPINTSEV, B.A., doktor khim. nauk, otv. red.; KULAKOVSKAYA, N.S., red.

[Hydrophysical and hydrochemical studies; an interdepartmental Republic-wide collection] Gidrofizicheskie i gidrokhimicheskie issledovaniia; mezhvedomstvennyi respublikanskii sbornik. Kiev, Naukova dumka, 1965. 137 p. (MIRA 18:5)

1. Akademiya nauk URSR, Kiev.

L 15248-66 EWT(1) GW
ACC NR: AP6001976 (N)

SOURCE CODE: UR/0362/65/001/012/1310/1318

57

AUTHOR: Kolesnikov, A. G.; Panteleyev, N. A.; Ivanov, V. N.

ORG: Academy of Sciences, UkrSSR, Marine Hydrophysics Institute (Akademiya nauk UkrSSR, Morskoy gidrofizicheskiy institut)

TITLE: Experimental studies of the turbulent drag layer under a drifting ice pack

SOURCE: AN SSSR. Izvestiya. Fizika atmosfery i okeana, v. 1, no. 12, 1965, 1310-1318

TOPIC TAGS: ice, turbulence meter, turbulent boundary layer effect, turbulent diffusion, turbulent flow, drag effect, energy dissipation, boundary layer turbulence, boundary layer structure / TM-1 turbulimeter

ABSTRACT: The turbulent layer of water 12,55 dragged along by drifting ice was studied in the spring and summer of 1956 in the Arctic Ocean. The flow velocities were measured with a TM-1 turbulimeter mounted in a hole 100 m from the edge of a drifting ice pack known as "North Pole-4." The horizontal and vertical velocities were continuously recorded at various depths (z) beneath the ice.

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UDC: 551.465.15

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At $z \geqslant \delta$ (which is a function of drift speeds) turbulence has no effect. The profile of the average flow velocity vs z, plotted in relative coordinates, showed the same logarithmic curve for all series of measurements. Tangential friction stress was strongly dependent on the drift speed, and rapidly increased with decreasing z. The maximum values of this quantity were not obtained because the measurements were not made immediately adjacent to ice. The turbulent structure was compared to the turbulent structure in a uniform boundary layer along a wall. Although similar, the turbulence decreased more rapidly under the ice (at z = 0, 20%; at $z = 1/3\delta$, 1—3%). The energy generation under the ice fell off more rapidly because of a different generation mechanism, rougher surface, etc. The energy dissipation also fell off more sharply. This was attributed to the nonuniform density of the water caused by the fresh water furnished by the melting ice. The authors thank V. P. Petrov and Yu. G. Pyrkin for their assistance in the measurements and analysis. Orig. art. has: 8 figures, 1 table, and 4 formulas.

SUB CODE: 08/ SUBM DATE: 20Jan65/ ORIG REF: 003/ OTH REF: 001

Card 2/2 BC

ACC NR: AT6035083 (N) SOURCE CODE: UR/3095/66/035/000/0003/0012

AUTHORS: Kolesnikov, A. G.; Isayev, I. L.; Isayeva, L. S.; Naumenko, M. F.; Chigrakov, K. I.; Shutov, A. P.

ORG: none

TITLE: The macrostructure of the temperature field on the ocean surface

SOURCE: AN UkrSSR. Morskoy gidrofizicheskiy institut. Trudy, v. 35, 1966. Gidrofizicheskiye i gidrokhimicheskiye issledovaniya tropicheskoy zony Atlantiki (Hydrophysical and hydrochemical research in the tropical zone of the Atlantic), 3-12

TOPIC TAGS: temperature distribution, ocean dynamics, research ship

ABSTRACT: The purpose of this paper is to investigate the temperature field of the ocean surface--the interface between hydrosphere and atmosphere over the ocean. This temperature field is a function of the intensity of vertical heat exchange in both media, the transfer of heat by ocean currents and winds, and also of "boundary" turbulence associated with the specific characteristics of the interface. Data for this study were obtained by making continuous records of the temperature of the surface water during passage of the Russian research ship Mikhail Lomonosov. A thermistor device was used, and the record was made by means of a self-recording EPP-09 potentiometer. Inertial lag in the record amounted to 0.3 sec. Analysis of curves of spectral density (drawn for three oceanic traverses) shows that the

ACC NR: AT6035083

dependence of the spectral density on wave number follows the "5/3 law" rather well, both for the open ocean and for near-shore zones, but the relation is not smoothly rectilinear. The spectra display a series of maximums, reflecting secondary sources acting at fixed intervals of wave numbers. These are related to dynamics of the water as a result of vertical movements and thermally induced changes (from invading currents, rise of water from depth, cloudiness that causes irregular heating by solar radiation, interaction of atmospheric fronts, etc). The actual spectral density of temperature fluctuations for the open ocean is approximately one order less than for the near-shore parts of the ocean. In the middle-scale region (of wave numbers), a minimum of spectral density occurs, characteristic of a number of meteorological elements such as heat flux, air temperature, wind velocity, and pressure. Orig. art. has: 3 figures and 4 formulas.

SUB CODE: 08/ SUBM DATE: none/ ORIG REF: 004/ OTH REF: 001

Card 2/2

ACC NR: AT6023553 (N) SOURCE CODE: UR/3095/66/036/000/0015/0025

AUTHOR: Kolesnikov, A. G.; Panteleyev, N. A.; Aretinskiy, G. Yu.; Dykman, V. Z.

ORG: None

TITLE: Apparatus for measuring the turbulent pulsations of current speed and temperature at great ocean depths

SOURCE: AN UkrSSR. Morskoy gidrofizicheskiy institut. Trudy, v. 36, 1966. Metody i pribory dlya issledovaniya fizicheskikh protsessov v okeane (Methods and instruments for studying physical processes in the ocean), 15-25

TOPIC TAGS: ~~oceanographic equipment, oceanographic expedition,~~ oceanographic instrument, ~~oceanographic ship,~~ oceanography, ocean current, temperature detector, temperature measurement, electronic equipment, transistorized circuit, TURBIDIMETER, OCEAN PROPERTY / GAT-3 TURBIDIMETER

ABSTRACT: The third model of a deepwater automatic turbulence meter (GAT-3), a transistorized version of the earlier GAT-2, developed in 1964, is described. Work on these meters began in 1956 in the Maritime Hydrophysical Institute of the Academy of Sciences of the Ukranian SSR under the leadership of Member-Correspondent A. G. Kolesnikov. The GAT-3 permits simultaneous recording on seven channels, of the vertical and horizontal components of speed pulsation, average speed, three components of the instrument's self-acceleration, and time. Temperature pulsations are also registered by a preheated sensitive element. The meter is encased in a steel

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